

## Implementing Facilities Management for Infrastructural Development: An Approach to Achieving the Transformation Agenda for Evolving Third World Communities.

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### **Keyword:**

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### **Abstract**

Infrastructures development refers to the fundamental facilities and systems serving a country, city, or area, including the services and facilities necessary for its economy to function. It typically characterizes technical structures such as housing, roads, bridges, tunnels, water supply, sewers, electrical grids, telecommunications, and so forth, and can be defined as "the physical components of interrelated systems providing commodities and services essential to enable, sustain, or enhance societal living conditions. However, all these coupled together can bring about the provision of good and affordable housing necessary for the smooth operation of a community. Not only does infrastructure development affect production and consumption directly, it also creates many direct and indirect externalities. It also affects large flows of expenditure, thereby creating additional employment. Infrastructure development has always played a key role in integrating economies

*within a region. Well developed and efficient infrastructure is essential for a regional economic development and growth. Infrastructure development is at its lowest ebb in developing nations because of dearth of fund. The Transformation Agenda is a development initiative adopted in third world communities under the context of the Vision 2020, based on a set of priority policies which when implemented will transform developing economies into self-sufficient developed nations. Transformation Agenda entails set of priority policies which when implemented will transform developing economies into self-sufficient developed nations. Studies had revealed that about \$57 trillion will be required to fund global infrastructure to aid sustainable GDP growth by 2030. However, given the widespread fiscal constraints in the wake of the global financial crisis, it will require innovative steps to boost productivity in the global infrastructure development. The impact of shortage of infrastructure in developing nations can be reduced by through the adoption of facility management. People in developing nations must see facilities management as a tool for infrastructure development and conscientiously embrace it. This paper assessed the roles of facilities management in infrastructure development in developing nations.*

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## **Introduction**

Communities throughout developing nations are facing unparalleled economic, social, fiscal and environmental trials that make it imperious for the public and private sectors to excel. Most glaring amongst these challenges is the dearth of infrastructure especially in the urban areas. These new forces are incredibly diverse, but they share an underlying need for modern, efficient and reliable infrastructure (Robert, 2015). The infrastructures in developing nations are not only inadequate; they are also grossly non-functional due to poor management.

For communities to experience strong business growth, essential and functional infrastructure development must take place (Zhou, 2017).

Facility management, according to IFMA (2019), is a profession that encompasses multiple disciplines to ensure functionality, comfort, safety and efficiency of the built environment by integrating people, place, process and technology. In April 2017, the International Standard Organisation (ISO) published the ISO 41011:2017 standard for facility management and defined facility management as the organisational function which integrates people, place and process within the built environment with the purpose of improving the quality of life of people and the productivity of the core business. Nwannekanma and Onyedika-Ugoeze (2019) stated that facility management is capable of contributing towards reducing facilities costs, increasing the capacity to generate revenue and improving the productivity, image and core business of organisations. Probably, the greatest challenges facing infrastructures development in developing nations today is not infrastructure design, finance or the availability of technology for construction, but maintenance of the infrastructure after delivery. Maintenance can help elongate the lifespan of infrastructure and reduce their demand.

Most infrastructures in developing countries are in states of decay, disrepair and/or abandonment (Obiadi, & Nzewi, 2018). The Olympic-size swimming pool at the Abuja stadium constructed in 2003 is in a dilapidated condition because it is neither used nor maintained. The National stadium at Surulere, Lagos, which was a cynosure of all eyes, is now a shadow of itself. Infrastructural development is a well-known key driver to economic development. Investments in water, sanitation, energy, housing, and transport improve lives and help decrease poverty; and new information and communication technologies support growth, improve the provision of health and other services, expand the reach of education, and support social and cultural improvements (Nilsson, 2017). The benefits of increased and rapid infrastructure development are evident in the successful economic development of the newly-industrialized nations of China, India, Mexico, South Africa and Brazil. It thus become vital for the less industrialized, third world communities to ensure increased investments in infrastructural development in order to bridge the economic gap from the highly industrialized and developed nations of the globe (Peuckert, 2016).

The Transformation Agenda is a global development strategy implemented by third world communities to transform into self-sufficient, developed nations by the year 2020 and beyond, with examples such as the Wawasan 2020 (Malaysia); India Vision 2020 (India); Vision 2020 (Rwanda); NV 20:2020 (Nigeria), and so on (Wawasan 2020, Gupta, 2002; MINECOFIN, 2011; NPC, 2012). According to Forrest (2019) the transformation agenda is based on a set of priority policies and programs which when implemented will transform the Nigerian economy to meet the future needs of the Nigerian people. One of such policies is the adoption of an Infrastructure development to back the growth of the national economy; where countries such as China, India, Malaysia and Singapore are already reaping its benefits, which has also been accompanied by a remarkable private sector inflow of investment for infrastructure development, with an enhanced competitiveness in the global scene. As such, the Nigerian National Planning Commission is working on a National Integrated Infrastructure Master Plan (NIIMP) that aims to develop infrastructure throughout the country between 2014 and 2043 (McKinsey Global Institute, 2014). With an estimated global infrastructure spending of \$57 trillion between 2013 and 2030 to aid GDP growth; Nigeria for instance, will require \$871 billion in core infrastructure through 2030 to support an upside GDP growth scenario. But given widespread fiscal constraints in the wake of the global financial crisis, even assembling the minimum investment required to meet growth predictions is a challenge. As such, it is imperative to take smarter and practical steps that could boost productivity in the global infrastructure sector by as much as 60 percent, thereby lowering spending by 40 percent for an annual saving of \$1 trillion. Over the next 18 years, this would be the equivalent of paying \$30 trillion for \$48 trillion worth of infrastructure (Mirza, S., & Ali, 2017). Facilities Management (FM) has been identified as the vehicle by which the business of planning, designing, building, and managing the world's infrastructure will be transformed to deliver higher productivity, quality, and cost-effectiveness (Haynes, Nunnington, & Eccles, 2017). The place of Environmental Design and Built Environment Research is here hinged on the strategic significance of Infrastructural Development in achieving the Transformation Agenda of the evolving third world communities.

## **The Nature of Infrastructures in developing Nation**

Infrastructure is the basic physical and organisational structures needed for the operation of a society like farms, housing, security, industries, buildings, roads, bridges, health services, governance and so on. It is the enterprise or the products, services and facilities necessary for an economy to function (Etzkowitz, & Zhou, 2017). The word infrastructure has been used in English since at least 1927 according to Online Etymology Dictionary (2012), originally meaning "The installations that form the basis for any operation or system". Infrastructure in developing countries connotes roads and transport infrastructures. The advent of telecommunication infrastructure in Nigeria in 2001 brought infrastructure to the front burner as the products and services necessary for the performance of an entity (Oyedele, 2019). Infrastructure development is one of the bases of assessing the achievements of governments and it is the foundation of good governance.

Agitation for infrastructural development in Third World countries like Nigeria is higher in democratic government than in military dictatorship or compared to developed countries. This is because the resources for provision of infrastructure are always scarce (Abbas, & Wakili, 2018). Ethnic-interest agitation and lobbying are common things in democratic governance in developing countries. This is why the Office of Government Commerce (OGC) in United Kingdom, advised that infrastructure project initiation should be done by project management office (PMO) specifically established to do this job (Oyedele, 2019). The Infrastructural report of Nigeria, just like any third world country, is nothing to write home about. The housing situation is in a sorry state both quantitatively and qualitatively (Agbola, 1998; Ajanlekoko, 2001; Nubi, 2000; Onibokun and Kumuyi, 1996 and Oyedele, 2012). The roads are inadequate for the teeming population. Most infrastructures are now decayed and/or disservice and need repair, refurbishment, rehabilitation or replacement. New or more infrastructures are required in all sectors of the economy (Sabri, & Olagoke, 2019). "Infrastructure has always played a key role in integrating economies within a region. Well developed and efficient infrastructure is essential for a region's economic development and growth. In a dynamic concept, infrastructure is seen as a regional public good that moves factors of production within and across countries, thus helping the region attain higher productivity and growth (Banerjee, Duflo, & Qian, 2020). "infrastructure resources generate value as inputs into a wide range of productive processes and

that the outputs from these processes are often public goods and nonmarket goods that generate positive externalities that benefit society as a whole.”

Infrastructure development in democratic governance is more challenging because of the accessibility of people to government and involves identifying the right project, carrying out feasibility and viability studies and embarking on physical development of the project. The challenges are numerous and include finance, technology for development, maintenance and design (Oyedele, 2019). The literacy level is low in developing nations and this means that few people can analyse development. Most successors in government, if not from the same party, will not continue and/or finish a project started by the previous government because of who gets the credit. The challenges also include quality requirements of projects to meet international standard and to be sustainably developed. Projects must meet the carbon emission standard set by international organizations like International Standard Organisation (ISO) and health and safety measures set by World Health Organisation (WHO). Air is captured and analyses are done in communities to ensure that they emit as little greenhouse gases (GHGs) as possible. Human settlements must be bio-diversified with co-habitation of other animals and plants and natural environment must be conserved for sustainable development and so on (Oyedele, 2019).

Tradesmen and other technical human resources needed for infrastructural development are scarce because of lack of training and motivation. “As a result, many professional people, tradesmen and senior managers are migrating to other countries” (Oyedele, 2019) Because of fast money, most youths that are supposed to learn a trade are now “commercial bicycle riders”. This development is affecting the quality of infrastructure being provided (Oyedele, 2019). The numerous challenges have not been tackled as they should. Nigeria's lack of basic infrastructure to facilitate sustainable development and trade – both regionally and globally – and to ensure competitiveness is already known by all. In particular, for the large number of local governments, especially the rural ones, the dwellers goods have no access to markets and are not stored, hampered by weak transport, warehousing and energy infrastructure. These challenges can be overcome partly by having sound facilities management strategy for the existing infrastructure (Shehu, 2018).

### **Definition and Scope of Facilities Management**

**Facility Management** (or **facilities management** or **FM**) is a professional management discipline focused upon the efficient and effective delivery of

support services for the organizations that it serves (Atkin, & Bildsten, 2017). The [International Organization for Standardization](#) (ISO) defines facility management as the "organizational function which integrates people, place, process and technology within the built environment with the purpose of improving the [quality of life](#) of people and the productivity of the core business in conjunction with the auxiliary as well as the support services.

Professional FM as an [interdisciplinary](#) business function has the objective of coordinate demand and supply of facilities and services within public and private organizations Bröchner, Haugen, & Lindkvist, 2019). The term "Facility" (pl. facilities) means something that is built, installed or established to serve a purpose, which, in general, is every "tangible asset that supports an organization". Examples are real estate property, buildings, technical infrastructure, (HVAC), lighting, transportation, IT-services, furniture, custodial, grounds maintenance and other user-specific equipment and appliances. The European standard for facilities management defines it as "the integration of processes within an organization to maintain and develop the agreed services which support and improve the effectiveness of its primary activities". (Lee, Jang, & Lee, 2016). FM covers these two main areas: 'Space and Infrastructure' (such as planning, design, workplace, construction, lease, occupancy, maintenance and furniture) and 'People and Organisation' (such as catering, cleaning, [ICT](#), [HR](#), accounting, marketing, hospitality). These two broad areas of operation are commonly referred to as "hard FM" and "soft FM". The first refers to the physical built environment with focus on (work-) space and (building-) infrastructure. The second covers the people and the organisation and is related to work psychology and occupational physiology. According to the [International Facility Management Association](#) (IFMA): "FM is the practice of coordinating the physical workplace with the people and work of the organization. It integrates the principles of business administration, architecture and the behavioral and engineering sciences." In a 2009 Global Job Task Analysis, IFMA identified the core competencies of facility management as: communication, emergency preparedness and business continuity, [environmental stewardship](#) and sustainability, finance and business, Hospitality management, [human factors](#), leadership and strategy operations and maintenance, [project management](#), quality [real estate](#) and [property management](#) and technology.

The Institute of Workplace and Facilities Management, formerly known as British Institute of Facilities Management, adopts the European definition and through its accredited qualification framework offers career path curriculum ranging from school leaver level through to [master's degree](#) level that is aligned with the European Qualifications framework. FM may also cover activities other than business services: these are referred to as non-core functions, and vary from one business sector to another. FM is also subject to continuous innovation and development, under pressure to [reduce costs](#) and to add value to the core business of public or private sector client organizations. Facility management is supported with education, training and professional qualifications often coordinated by FM institutes, universities and associations. Degree programmes exist at both undergraduate and post-graduate levels.

### **Significance of facility Management to infrastructure Development**

The African Development Bank (ADB) has made infrastructure development a cornerstone in its development agenda with regional member countries (Bøa, 2019). The Bank recognizes that lack of adequate social and economic infrastructure is one of the key constraints to short- and medium-term poverty reduction in Africa, and has thus been a major force in private and public sector infrastructure development through the provision of financial and technical resources. At the same time, the Bank recognizes the increasing importance of governance for infrastructure development and has made good governance an imperative in its lending and non-lending operations." Good facility management is concerned with addressing those needs in the best and most cost-effective ways possible. Indeed, facility management encompasses a wide range of responsibilities to infrastructural development which include the following. Facilities Management service is more wider than its mere definition, in service, facilities management encompasses wide range of services which include real estate management, financial management, change management, human resource management, health and safety and contract management, in addition to infrastructure development, domestic Service (such as, cleaning and catering) and utilities supplies (Kerzner, 2017). From the above definition it is obvious that facilities management is more than a simple service that is the reason why many professionals that were not in the built environment partakes on facilities management service. Again, facilities management service embraces the concepts of cost-effectiveness, productivity improvement, efficiency, and

employee quality of life (Muhamad, 2015). All these entails the fact that facilities management service has come to an age where it can coordinate and help to enhance provisioning of optimal quality of infrastructural “(Haynes, Nunnington, & Eccles, 2017).

Facilities management is increasing perceived as “add value” not only to the world alone but it’s social and environmental friendly activities such as environmental impacts assessment (EIA) that makes proposed infrastructure less harmful to people (Muhamad, 2015). Frischmann and Selinger (2018) opined that trend towards people engagement in facilities management in the development of infrastructures that people needs and value has re-engineering new condition. New dimensions of community engagement in facilities management was first disclosed by Roberts (2004) within the ambit of urban facilities management.

Facilities management go beyond the horizon of property management and supporting core business of an organisation but to social setting of a given communities with service like poverty alleviation, gender equality and many activities that can accord sustainable development of masses. In addition, the need for engaging local communities in facilities management has been recognised by British government (Rozilah, 2011). Facilities Management is more concerned with the maintenance of service and facilities provided for the people, such as provision of infrastructure comfort of masses (Støre-Valen, & Buser, 2019).

An infrastructure without planning programmes that is only executed at operational level is likely to face many more exertion caused by the absence of accurate facilities management techniques and strategic planning and explanation (Bryson, 2018). (Olawumi, Chan, and Wong (2017) supports the view that a poorly defined infrastructure is more likely to experience serious problems. The definition was support by work of Robert (2004). Facilities Management service in infrastructure development occupy a substantial position and happens to be an element that increases its complexity. It is well known fact that information and communication overflow are major problems and difficulties in in infrastructure development (Dzorgbo, 2017).

A good facilities management practitioner plans actions to be proactive, not merely reactive (Meng, 2013). The role of planning in facilities management services has a very importance position. Initially, it purposely direct the faces of the organisation core aspect of operations. More again, it clearly exhibit how

far from the initial stages of the infrastructure to the final stage through proper planning and maintenance of the infrastructure in question (Sneddon, 2000).

### **The Challenges of Facility Management in Nigeria**

The objective of facility management is to keep the milieu of an asset intact. Maintenance as a function in facility management is now becoming more important in infrastructural development (Fen, Wu and Liu, 2009). Maintenance process of a facility must be given serious consideration before embarking on development if the milieu of the infrastructure has to be kept in place and yield value for money (Woltjer, 2017). Without proper maintenance of infrastructure in a country, the country will lose money. The challenges of facility management in infrastructure development in third communities are:

- **Absence of Maintenance Culture:** Maintenance culture is lacked in developing countries including Nigeria. Infrastructural facilities are left to decay after completion. It is shocking that huge sums of money are spent building and developing infrastructures in third world communities only to look back after few years and find out that such beautiful infrastructures are decayed due to lack of maintenance (Amakom, & Ekeocha, 2017). According to Shankleman (2013), “The government's pothole review warned councils that if they wait until the last minute to repair a badly damaged road, it costs four times more than if they maintained a road that is still driver-friendly. Asphalt Industry Alliance (AIA) research has also found that preventative maintenance is at least 20 times less expensive than reactive maintenance. Our lack of maintenance is a case study and second to none. The National Stadium in Surulere, National Theatre in Iganmu, Murtala Muhammed International Airport in Ikeja, all in Lagos; are examples of infrastructures that have gone bad. The National Stadium, Abuja was in a sorry state as shown above in Pictures 1 and 2 before it was rehabilitated. Oyedele, (2019) stated that our lack of maintenance is ‘legendary’. “In most houses, when the roof starts to leak, we ignore because it’s not the rainy season; we fail to fix the bad electrical sockets; the blocked drain-pipes and a thousand and one small defects or damage around the house when noticed. The day disaster strikes in the form of flooding or fire outbreak or building-collapse, we blame everyone else but ourselves” (Oyedele, 2019).

-**Demand and Supply:** Due to poor performances of most past leaders in the area of infrastructure provision, the demand for infrastructural facilities overwhelms the provision. With a land mass of 9,110,000 square kilometers and

over 150,000 million people, Nigeria has a total road network of 193,200 kilometres. This comprise of 34,123KM federal roads, 30,500KM state roads and 129,577 KM local government roads. This road network is inadequate for a population of over 160million people spread over 9,110,000 square kilometers. Unfortunately, over 70% of the federal roads are in bad state of repair due to intensive usage especially by heavy duty vehicles. South Africa's total road network is about 754,000 kilometres with a total land mass of 1,219,090 square kilometres. In the area of housing, Nigeria requires about 17 million housing units and about 60 trillion naira in order to meet its housing needs as at 2011 (Pepple, 2011).

- **Finance:** The fund for infrastructure maintenance is not pre-allocated and usually maintenance fund is sourced through fire-brigade approach. This is why plan by the federal government to provide 75 per cent of Nigeria's population with potable water by 2015 may not be realized (The Guardian, 2012). Federal Road Maintenance Agency (FERMA) cannot achieve its mission statement "to efficiently administer road maintenance with the objective of keeping all federal roads in good, safe and comfortable condition for the best value in road transport" because of lack of finance. To ensure continuous availability of fund, the Lagos State Government has passed a bill to establish "Infrastructure Asset Management Agency". This agency will be in charge of infrastructure maintenance.

- **PARETO Analysis:** Pareto analysis is a statistical method in decision making that is used for identification of a specific number of tasks that produce major impact (Giannakis, & Papadopoulos, 2016). It uses the Pareto Principle (which is also called the 80/20 rule). It originated the idea that by doing specific 20% of the work, you can generate 80% of the benefits of doing the whole job. In terms of quality improvement, a large majority of defects (80%) are produced by a few key causes (20%) (Giannakis, & Papadopoulos, 2016). This is also known as the vital few and the trivial many or the significant few and insignificant many. In infrastructural maintenance, 80% of inefficiencies are caused by 20% of defects etc. It can also mean that 80% of the defects are caused by 20% of the users (Zhan, & Ding, 2015). For example, Nigerian roads are mostly damaged by heavy duty trailers. The government can charge these vehicles road tax for maintenance.

-**Development Matrix:** Infrastructure developers are not appreciative of the four factors of infrastructural facilities development which are: design, finance,

technology and management (Oyedele, 2019). (See Table 1 below). The appropriate designs that will ensure easy maintenance are equally important as the technology and finance. For example, conduit system is now being eradicated because of maintenance problems. In case of electric spark, the conduit pipe will be difficult to remove because the structure is monolithic. Structures are first finished before laying pipes for mechanical and electrical services. These pipes may be done surface and hide with encasement or embedded. This system makes the structure monolithic and maintenance easier.

**Table 1: Development Matrix.**

<i>S/N</i>	<i>1</i>	<i>2</i>	<i>3</i>	<i>4</i>
<i>1</i>	<b>Finance</b>	<b>Design</b>	<b>Technology</b>	<b>Facility Management</b>
<i>2</i>	<b>Design</b>	<b>Technology</b>	<b>Facility Management</b>	<b>Finance</b>
<i>3</i>	<b>Technology</b>	<b>Facility Management</b>	<b>Finance</b>	<b>Design</b>
<i>4</i>	<b>Facility Management</b>	<b>Finance</b>	<b>Design</b>	<b>Technology</b>

- **Corruption:** Corruption in Nigeria is very high and unbearable for effective infrastructural development. The Bureau of Public Procurement (BPP), the Independent Corrupt Practices Commission (ICPC) and Economic and Financial Crimes Commission (EFCC) have not been able to eradicate corruption in the country. Corruption permeates all facets of life (Shehu, 2018).

## CONCLUSION AND RECOMMENDATION

The need for increased investments in infrastructure development has become an essential strategy to accelerate the necessary economic growth that will help transform the less industrialized third world communities into the highly industrialized and developed nations of the globe; with the newly-industrialized nations of China, India, Mexico, South Africa and Brazil already reaping from these benefits. As such, one of such policies under the transformation agenda Transformation Agenda to be adopted by developing communities in the context of the Vision 2020 development initiative is the adoption of facilities management to support the expected GDP growth through 2030. However, with an estimated global infrastructure spending of \$57 trillion between 2013 and

2030 to aid GDP growth, and given the widespread fiscal constraints in the wake of the global financial crisis; smarter and practical steps that could boost productivity in the infrastructure sector by as much as 60 percent, and guaranty an annual saving of \$1 trillion has been recommended by global economic experts. Facility management therefore stands as the vehicle by which the business of planning, designing, building, and managing the world's infrastructure will be transformed to deliver higher productivity, quality, and cost-effectiveness. The dividends of such a paradigm shift in the capital expenditure procurement process are already bearing fruit in the major economies of the world. As such, it is imperative that the governments of the third world communities mandate the adoption of Facilities Management (FM) in infrastructure development. This will therefore serve as a necessary strategy towards achieving the objectives of the Transformation Agenda for Third World Communities evolving as global Developed Nations.

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